

ABSTRACT OF THE DISCLOSURE

An excited state atomic line filter. The present invention solves the problem of lack of ground state resonant lines in at wavelengths substantially longer than those of visible light.

- 5 Atomic line filters of the Faraday or Voigt crossed polarizer type are provided in which alkali metal atomic vapor in a vapor cell is excited with a pump beam to an intermediate excited state where a resonant absorption line, at a desired wavelength, is available. A magnetic field is applied to the cell producing a polarization rotation for polarized light at wavelengths near the resonant absorption lines. Thus all light is blocked by the cross polarizers except light
- 10 near one of the spaced apart resonant lines. However, the polarization of light at certain wavelengths near the resonant is rotated in the cell and therefore passes through the output polarizer.